

Claims

1-29. (cancelled)

30. (previously presented) An enhanced-surface-area conductive structure in an integrated circuit, the structure comprising:

- a supporting structure;
- a conductive layer situated on a surface of the supporting structure; and
- a layer of ruthenium oxide having at least one pitted surface situated on the conductive layer.

31. (previously presented) A capacitor structure in an integrated circuit, the structure comprising:

- a supporting structure;
- a conductive layer situated on a surface of the supporting structure;
- a layer of conductive metallic oxide having a pitted surface situated on the conductive layer; and
- a layer of dielectric material disposed conformally on the pitted surface.

32. (original) The capacitor structure of claim 31, further comprising a layer of conductive material disposed on the layer of dielectric material.

33. (original) The capacitor structure of claim 31, wherein at least some of the pits in the surface of the conductive metallic oxide layer extend completely through the conductive metallic oxide layer.

34. (original) The capacitor structure of claim 33, wherein the pits in the surface of the conductive metallic oxide layer have a mean diameter in the range of one to three times a thickness of the conductive metallic oxide layer.

35. (original) The capacitor structure of claim 33, wherein the pits in the surface have a mean closest distance that is at least two times a thickness of the layer of dielectric material.

36. (original) The capacitor structure of claim 31, wherein the conductive metallic oxide layer comprises ruthenium oxide.

37. (original) A conductive structure in an integrated circuit, the structure comprising a layer of conductive material with islands of conductive metallic oxide disposed thereon.

38. (original) The structure of claim 37, wherein the conductive metallic oxide comprises ruthenium oxide.

39. (original) A capacitor structure in an integrated circuit, the structure comprising:
a layer of conductive material with islands of conductive metallic oxide disposed thereon;
and

a layer of dielectric material disposed conformally on the islands of conductive metallic oxide, wherein a portion of a surface of the layer of conductive material is exposed between the islands.

40. (original) The capacitor structure of claim 39, wherein the conductive metallic oxide comprises ruthenium oxide.

41. (original) The capacitor structure of claim 39, further comprising a layer of conductive material disposed conformally on the layer of dielectric material.

42. (previously presented) An integrated circuit, comprising a plurality of capacitors that include a conductive layer, a layer of conductive metallic oxide having a pitted surface situated on the conductive layer, and a layer of dielectric material disposed conformally on the pitted surface.

43. (currently amended) An enhanced-surface-area conductive structure in an integrated circuit, the structure comprising a conductive layer of ruthenium and ruthenium oxide, wherein

~~with at least one surface of the conductive layer has having a plurality of pits situated at~~
~~, wherein the pits are associated with a ruthenium phase zones in the conductive layer.~~

44. (currently amended) A capacitor structure in an integrated circuit, comprising:
a layer of conductive metallic oxide with a surface having a plurality of pits ~~associated~~
~~with a~~ situated at metallic phase zones in the conductive layer; and
a layer of dielectric material disposed conformally on the pitted surface.

45. (currently amended) A capacitor structure in an integrated circuit, the structure comprising:
a supporting structure;
a layer of conductive metallic oxide having a surface that includes a plurality of pits
situated at ~~associated with a~~ metallic phase zones in the conductive metallic oxide layer; and
a layer of dielectric material disposed conformally on the pitted surface.

46. (previously presented) The capacitor structure of claim 45, further comprising a continuous layer of conductive material disposed on the layer of dielectric material.

47. (previously presented) The capacitor structure of claim 45, wherein at least some of the pits in the surface of the conductive metallic oxide layer extend completely through the conductive metallic oxide layer.

48. (previously presented) The capacitor structure of claim 45, wherein the pits in the surface of the conductive metallic oxide layer have a mean diameter in the range of one to three times a thickness of the conductive metallic oxide layer.

49. (previously presented) The capacitor structure of claim 45, wherein the pits in the surface have a mean closest distance that is at least two times a thickness of the layer of dielectric material.

50. (previously presented) The capacitor structure of claim 45, wherein the conductive metallic oxide layer comprises ruthenium oxide.